DOCUMENT RESUME

ED 479 316 CE 085 275

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TITLE	Virtual Mobility in Reality: A Study of the Use of ICT in Finnish Leonardo da Vinci Mobility Projects.
SPONS AGENCY	Commission of the European Communities, Brussels (Belgium). Directorate-General for Education and Culture.
PUB DATE	2002-00-00
NOTE	12p.; Produced by the Ministry of Education, Finnish Centre for International Mobility. Funded through the Leonardo da Vinci programme.
AVAILABLE FROM	For full text: http://europa.eu.int/comm/education/programmes/leonardo/new/leona rdo2/studies/ mobility.pdf.
PUB TYPE	Reports - Research (143)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	Adult Education; *Computer Mediated Communication; Cross Cultural Training; Developed Nations; Educational Planning; Foreign Countries; *Information Technology; International Cooperation; *International Educational Exchange; International Programs; *Occupational Mobility; Online Courses; *Overseas Employment; Partnerships in Education; Postsecondary Education; Telecommunications; Vocational Education; Work Experience Programs; World Wide Web
IDENTIFIERS	*Electronic Learning; *Finland

ABSTRACT

An e-mail survey and interviews collected data on use of information and communications technology (ICT) in Finnish Leonardo da Vinci mobility projects from 2000-02. Findings showed that the most common ICT tools used were e-mail, digital tools, and the World Wide Web; ICT was used during all project phases; the most common problems concerned functioning, availability, or compatibility of equipment, and data protection issues; and big differences were found between material and human resources between partners regarding ICT use, presenting a great challenge to international ICT use. Case studies were conducted of nine exemplary mobility projects where ICT use was versatile and innovative. A model of types of virtual mobility was developed. These four types of virtual mobility were identified: increase organization's ICT expertise; support and develop realization of mobility projects; internationalize at home through virtual means of communication; and continue virtual cooperation. These five guidelines for successful ICT use in mobility projects were produced: start with needs, goals, and strategies of the mobility project and organization; identify resources of partner organizations; justify choice of ICT equipment; ensure beneficiaries have necessary skills and knowledge; and partner relations are important. (A tool to help in planning ICT use is appended.) (YLB)

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Sonja Valjus

Virtual Mobility in Reality

A study of the use of ICT in Finnish Leonardo da Vinci mobility projects

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FOREWORD

"With the help of the Internet, we were able to inform trainees about working and living conditions in the target country before their placement. Use of information and communications technology improved the quality of the project and made guidance easier." (A Leonardo da Vinci Young Workers project, year 2000)

Versatile use of information and communications technology (ICT) in developing different activities is one of the goals of the European Union's strategy for a knowledge-based society. Several EU development programmes are geared to help achieve this goal. Since 2000, it has also been one of the priorities in the EU's vocational training programme, Leonardo da Vinci. The Finnish Centre for International Mobility CIMO studied what role ICT played in Leonardo da Vinci mobility projects coordinated by Finnish institutions. International mobility projects are a part of educational activities of training institutions and other organisations. Use of ICT in education and training has been actively developed in the EU and Finland during the past few years and a significant amount of funds have been targeted for this purpose. The idea of the survey was to find out how this trend manifests itself in Leonardo mobility projects. The results of the survey are presented in this report.

Leonardo da Vinci is a European Union's education and training programme providing funding for development of initial, continuing and further vocational training in European cooperation. The programme is in its second phase which runs from 2000 to 2006. The total EU budget for the programme is 1.15 billion euros over the seven years. The Directorate-General for Education and Culture of the EU is responsible for the implementation of the programme. In Finland, the Ministry of Education implements the programme at national level. The Centre for International Mobility CIMO is responsible for the practical administration of mobility projects and for provision of information and guidance about the mobility measure in Finland.

The survey examined Finnish Leonardo da Vinci mobility projects from years 2000-2002. Data was collected through e-mail survey and interviews. The impetus for the survey is the fact that the use of ICT is strongly emphasised in both European and national development strategies and visions. Some of these strategies are described in the beginning of the report. Details of the realisation of the survey and of its framework – the Leonardo da Vinci programme, particularly its mobility measure and information and communications technology – are provided. This background information is followed by the results of the survey.

First I will describe what the reality of using ICT in mobility projects is and how it can be used in planning and realisation of mobility projects. I look into what kind of ICT equipment and applications are used in projects, to what extent and for what purposes. To make the best possible use of the results in future projects, I have described how different ICT tools have been used during different phases of projects.

Obstacles and good practices in the use of ICT in international mobility projects are also presented based on project coordinators' answers to the question what factors they thought had advanced or hindered the use of ICT in their project. Coordinators were also asked how the use of ICT in mobility projects was linked to their organisation's strategy for educational use of ICT, which all educational institutions in Finland have to produce by the end of 2002.

Furthermore, some exemplary mobility projects where the use of ICT was versatile and innovative are presented as case studies. They will give a more

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comprehensive and detailed picture of the possibilities of virtual mobility in Leonardo da Vinci mobility projects.

Finally, the report tries to figure out what virtual mobility in Leonardo mobility projects really means at present. On the basis of all the data collected, I present the dimensions of possibilities virtual mobility offers.

We also produced guidelines and a tool to help project coordinators plan the use of ICT in mobility projects. The English versions of the guidelines and the tool can be found in CIMO's www-service http://www.cimo.fi. Annexed to the report, you will find contact details of Finnish Leonardo projects that have used ICT in their projects. The survey was done by Ms Sonja Valjus, graduate student in adult education. The steering group consisted of Ms Nina Eskola, head of unit of the Leonardo da Vinci unit at CIMO; Mr Lauri Tuomi, area manager from the adult education centre Edupoli; and Ms Leena Vainio, development manager from the eLearning Center of the Häme Polytechnic. The abbreviation ICT will be used for information and communications technology in this report.

SUMMARY OF RESULTS OF THE SURVEY

Use of ICT in mobility projects

The most common ICT tools used in the mobility projects of 2000-2002 were e-mail, digital tools, and WWW (for searching and distributing information). E-mail had been used in 98% of projects that participated in the survey. Video conferencing, chat rooms, discussion boards on the net, net meetings and virtual learning environments were used considerably less, but their use had increased a great deal in the projects of the year 2002. ICT was not used at all only in 2% of projects.

ICT was used during all phases of mobility projects. E-mail is used through the whole life span of projects. During the planning stage, different means of communication were used, mainly e-mail, but also video conferencing, chat rooms, net meeting and net discussion boards. In a few projects, job interviews were carried out digitally. ICT was used extensively in the linguistic and cultural preparation of trainees, in the form of virtual learning environments, video conferences, e-mail, information from the WWW, and digital learning material. During the placements, trainees were contacted and supported through above-mentioned means. Information about projects and their results was disseminated through web-sites and CD-ROMs. Digital means of communication were used in evaluation and digital tools in reporting. After projects are finished, contacts are maintained by e-mail. Some projects have built a common working environment on the net to maintain contacts and to carry out joint virtual courses or projects.

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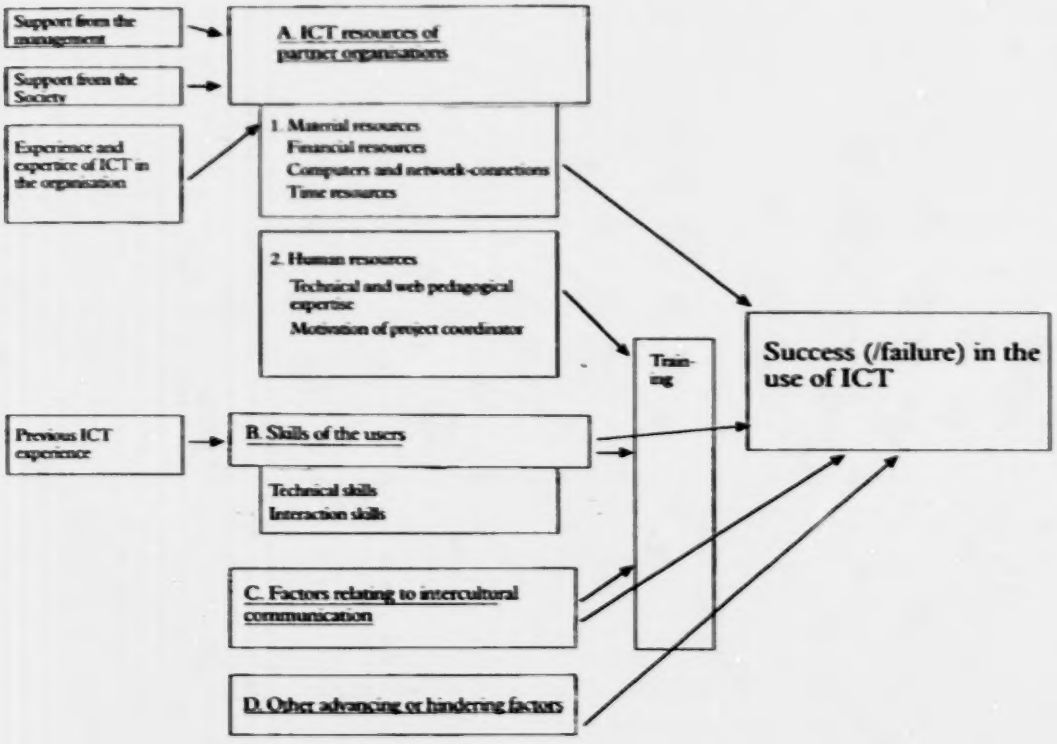
Factors advancing and hindering successful use of ICT in an international context


Support from the management
Support from the Society
Experience and expertise of ICT in the organisation
A. ICT resources of partner organisations
1. Material resources
Financial resources
Computers and network-connections
Time resources
2. Human resources
Technical and web pedagogical expertise
Motivation of project coordinator
Previous ICT experience
B. Skills of the users
Technical skills
Interaction skills
C. Factors relating to intercultural communication
D. Other advancing or hindering factors
Train-ing
Success (/failure) in the use of ICT

Picture 1.
Factors advancing and hindering successful use of ICT in an international context

Picture 1 illustrates all the factors affecting succesful use of ICT in Finnish Leonardo projects 2000-2002. 60% of projects had encountered some kind of problems with the use of ICT. The most common problems were concerned with functioning, availability or compatibility of equipment and connections, and data protection issues. There were often big differences in available resources and skills between different partners. The financial support of the society, its infrastructure, support from management of participating organisations, and their general expertise in ICT affect available ICT resources in projects to a great extent

Detailed discussions about available resources and about ICT skills of partners in the planning stage of a project and being prepared for possible needs for further training will help successful use of ICT. If project partners can meet in person before continuing interaction on the net, communication will be more successful, since this increases commitment of partners and makes communication more natural between

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them. One significant factor for successful use of ICT is to build on already existing systems. Use of ICT in a mobility project can be linked to larger ICT development projects in organisations. Due to lack of skills, time or money, it is often not possible to develop very complicated new ICT applications in a mobility project. Many projects mentioned the need for extra funding, and many projects that had used ICT to a greater extent had secured extra funding from different sources.

How the use of ICT in mobility projects is linked to Finnish organisations' strategies for the educational use of ICT

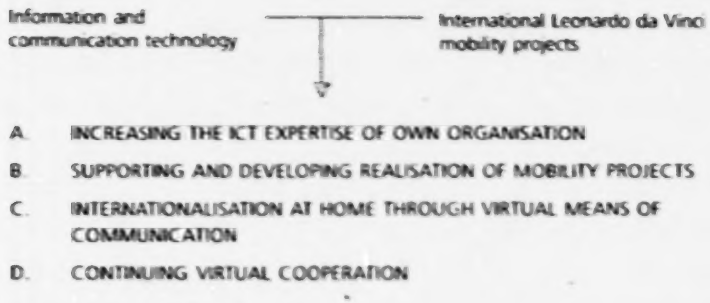
Each educational institution in Finland has to produce a strategy for the educational use of ICT by the end of 2002. In 42% of the studied mobility projects, the use of ICT linked naturally to the institution's strategy for the educational use of ICT. In 13% of the projects, the strategy was still under work, and in 9% of the projects the use of ICT had no link at all to the strategy.

Case studies of use of ICT in mobility projects

Nine case studies of the use of ICT in mobility projects are described in more detail in this report. Espoo Institute of Business uses a virtual learning environment in linguistic and cultural preparation, in preparation and guidance of students in work-based learning, and in general administration of their project. Continuing international team learning with the help of video conferences and e-mail is being developed in Joensuu College of Further Education. Finnish universities of technology are developing net-based cultural preparation material. Virtual learning environment is used in linguistic and cultural preparation in Laurea Polytechnic. Oulu Polytechnic uses video conferencing for planning, job interviews, linguistic and cultural preparation, and guidance and evaluation of students in work-based learning. In the expert exchange project of Tampere Institute of Social Work, a virtual environment for international distribution of information and learning about care of brain stroke patients is being built. The expert exchange programme of Edupoli adult education centre - BITCOM - has developed the use of net meeting in international tutoring. The Pro Europass project of the adult education centre Amiedu makes use of the versatile Europass net application developed in a Leonardo da Vinci pilot project to support international placements of apprenticeship students.

Virtual mobility in Leonardo da Vinci mobility projects

Based on the main question of the survey – what is virtual mobility in Leonardo mobility projects – we built a model of the types of virtual mobility. (See picture 2.) The traditional definition of virtual mobility was expanded to mean all new forms of mobility that combine the use of ICT in a Leonardo mobility project. Leonardo mobility projects always involve traditional, physical mobility from one place to another, and in this survey virtual mobility is understood as something that exists next to or as a result of traditional mobility. We identified four types virtual mobility in the projects studied.


Information and communication technology
International Leonardo da Vinci mobility projects
A. INCREASING THE ICT EXPERTISE OF OWN ORGANISATION
B. SUPPORTING AND DEVELOPING REALISATION OF MOBILITY PROJECTS
C. INTERNATIONALISATION AT HOME THROUGH VIRTUAL MEANS OF COMMUNICATION
D. CONTINUING VIRTUAL COOPERATION

Picture 2. Types of virtual mobility

Most of Finnish Leonardo mobility projects from 2000-2002 used ICT to support and develop the realisation of the project or to develop the organisation's expertise in the use of ICT, which we define as types A and B of virtual mobility. Internationalisation at home through the use of ICT or continuing virtual cooperation, types C and D in this survey, were developed only in a few projects at the moment.

CONCLUSIONS

Possibilities of combining international mobility and e-learning into virtual mobility is a topical issue at the moment. Virtual mobility on the net will probably never replace the traditional, actual mobility completely, because interaction via technology is always restricted and you cannot really experience the feeling of living in another culture through virtual contacts. However, a great deal can already be done on the net. As this survey shows, many kinds of virtual mobility can be developed within Leonardo mobility projects and to support them.

In the beginning of the survey, we concentrated on examining how ICT was used to support and develop the realisation of mobility projects. Different ICT applications create new possibilities in carrying out mobility projects. In Finland, e-mail has already in many cases replaced the more traditional means of communication - telephone and fax - and it is used in almost all Leonardo mobility projects. In international communication, however, telephone and fax are still in some cases regarded as the most reliable tools. Text messaging with mobile phones has become regarded as a new reliable tool alongside the more traditional telephone and fax, particularly when keeping in touch with students abroad. Effective use of ICT requires that all partners have the equipment, time, skills and willingness to use new technology. ICT is a tool which in some projects brings considerable benefits whereas in some

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other projects its use is not at all relevant. In the end the contents of activities is always the most important thing.

It became clear that the use of ICT is increasing and becoming more varied in Finnish mobility projects. The use of e-mail and digital tools in projects is close to 100%. The use of other kinds of applications is still more rare but increasing rapidly. The use of applications that combine several tools in the same environment, in particular, is growing. This trend follows general trends in the educational use of ICT. The coordinating organisation's expertise in the use of ICT in general also often contributes to the use of ICT in mobility projects.

The factors advancing or hindering the use of ICT that came up in the survey were classified into a model of factors affecting the successful use of ICT in mobility projects. This model shares the experiences received from real projects and can be used in planning of future projects. The use of ICT is n without problems, but its use brings so much added value that despite the problems, here is a lot of enthusiasm to develop things.

ICT as the driving force of the information society feature prominently in future visions in Finland and in the European Union. The use of ICT in mobility projects has many benefits and on their part the projects contribute to the realisation of national and European visions and strategies. As for individuals, the use of ICT in mobility projects naturally improves their own ICT competence..

On the organisational level strategies are realised through virtual mobility within the Leonardo programme. As an answer to the main question of the survey – what is virtual mobility in Leonardo mobility projects at present – we created a model of types of virtual mobility. The traditional definition of virtual mobility was expanded to cover all combinations of the use of ICT in Leonardo mobility projects. Leonardo projects always involve traditional mobility, and virtual mobility in this survey is understood as something that exists next to or is a result of traditional mobility. The model of virtual mobility can be used in the innovation prosess of new Leonardo projects. It can also be used to classify the use ICT in mobility projects.

Most of the Leonardo mobility projects examined in this survey either tried to support or develop the realisation of a mobility project with the help of ICT or to develop the organisation's own expertise in the use of ICT. The other two types of virtual mobility, that is internationalisation at home or continuing virtual cooperation, were being developed only in a few projects. However, they are forms of future virtual mobility and we can expect them to become more common in Leonardo projects, too.

It became clear during the study that there were big differences between material and human resources between partners with regard to the use of ICT, which presents a great challenge to the international use of ICT. Europe strives to guarantee equal opportunities to all in using ICT in the future. This is not a reality yet, however. The use of ICT creates inequality since its use – the equipment and updating them— is not cheap. There are big differences between different European countries in how the use of ICT is supported. In European comparison, things are well in Finland. The government supports strongly the development of the use of ICT and educational institutions have good resources. This is apparent in Finnish Leonardo mobility projects, too.

GUIDELINES FOR SUCCESSFUL USE OF ICT IN MOBILITY PROJECTS

In this chapter, I will give tips for how to successfully use ICT in mobility projects. The ideas are based on the factors that came up in the survey as either advancing or hindering the use of ICT and on the model of Vähäpassi and Vaahtokari (1995). Vähäpassi and Vaahtokari have developed a model for planning a distance learning course, but it adapts well to planning of the use of ICT, too.

Identifying the goals and needs of a project make up the basis for a successful use of ICT in a mobility project. ICT should always be seen only as a tool supporting and in some cases enabling activities. It is wise to consider carefully what kind of technological tools it is sensible to use in a project. When planning the use of ICT in a project, one should take into account the strategies and resources of all partners, the goals and needs of the project and the skills and knowledge of beneficiaries.

1. Start with the needs, goals and strategies of the mobility project and your organisation

Planning should always be based on identifying the goal of activities. Before deciding about the use of any ICT tools, you should consider what the goals of your project are and how they link to more general goals of your organisation. A mobility project is one part of your organisation's activities and it should be guided by the same strategies as any other regular activities. Most organisations applying for Leonardo funding in Finland already have a strategy for the educational use of ICT and when planning a project you should consider how the project will contribute to implementing that strategy. Sometimes the project can also contribute to developing the strategy.

2. Identify the resources of partner organisations

For successful use of ICT, it is important to identify what resources and needs all partner organisations have in this respect. It is as important to find out about the resources of your partner organisations as those of your own. According to this survey, one of the major obstacles to successful use of ICT in mobility projects was differences in the both material and human resources of partners. Material resources include financial resources, time and facilities. Human resources include the skills, knowledge, commitment and personalities of personnel.

a. Material resources

You should find out what ICT applications each partner organisation has and do they have or can they acquire extra funding to develop them. There are a variety of funding sources for development of ICT that can help supplement the Leonardo mobility grants. For successful use of ICT it is important to identify the following

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points for each partner:

- functioning and efficiency of equipment and connections;
- compatibility of applications and programmes;
- availability of computers and Internet connection; and
- does the organisations' fire walls allow use of real-time interactive applications.

It is not always necessary to have all equipment in the organisation itself: you can sometimes use net cafés, for example. A very important thing for successful use of ICT is to plan the time resources available in advance. Time should naturally be reserved for the actual use of ICT; interaction in writing through the net is more time-consuming than face-to-face interaction. It then depends on the application to be used how much time will be needed for planning and development. The more complicated, unfamiliar and unfinished technology is used, the more time will be required for the planning and development. For example, building of study courses and material on the net and their maintenance often require surprisingly much time. You should also reserve time for the use of real-time applications. The weekly schedules of partners can be very different and finding a time that suits everybody concerned is not always simple.

b. Human resources

Material resources are not enough, but the use of ICT also requires skills, expertise, commitment and willingness to use the ICT resources from project partners. Willingness and commitment are the most important factors. Skills and expertise can always be acquired by learning or by using outside help. The use and planning of ICT requires both technical and pedagogic skills and expertise.

You can learn a lot from other people's experiences from using similar equipment and applications. Some Leonardo pilot and mobility projects have developed web pedagogy and it is worth studying their results. Remember also to make use of the already existing ICT expertise in your own organisation. Whenever possible, it often makes more sense and it is more economical to build on already existing systems than to develop something completely new.

3. Justify your choice of ICT equipment

Only after goals, links to overall strategies, and partners' resources have been identified, you can decide what kind ICT equipment and applications you will use, how and for what purposes. Equipment and applications should be chosen on the basis of how they advance the goals of participating organisations and the project, on the needs of students and efficient use of available resources. Different projects require different equipment and applications which can be combined creatively into a package that works for your needs.

Unexpected problems in the use of ICT can always arise. Therefore, it is always a good idea to have an alternative plan with regard to equipment and applications in use. It is also advisable to explain to the beneficiaries of mobility grants why the particular kinds of equipment and applications are used in your project: it will help them understand the rationale behind the project and see it in a wider context.

4. Make sure that beneficiaries have the necessary skills and knowledge

In order to use ICT successfully in your mobility project, for example in the linguistic and cultural preparation of students or in guidance of students in work-based learning, it is important to make sure that not only the coordinators but also those going on an international placement have the required ICT skills and when necessary to provide further training.

5. The importance of partner relations

As in mobility projects in general, good relationships between partners are of great importance in the use of ICT in projects, too. Meeting partners in person before continuing cooperation on the net, will help successful virtual cooperation. It is also important that all partners feel that the choice of ICT equipment and applications is justified and relevant with regard to achieving the common goals.

In annex you will find a tool to help in planning the use of ICT in a mobility project developed on the basis of the results of this survey.

Annex 1
A tool to help in planning the use of ICT

The project planning tool for the use of ICT in a mobility project has two parts. Firstly, the tool enables analysing the need for the use of ICT in different phases of the project. The tool includes the different phases of a mobility project and the most common ICT applications used in Leonardo da Vinci mobility projects. Secondly, in the tool the user may write down the availability of applications and capability of different project partners to use them. With the help of this tool it is possible to check that the project plan with regard to the use of ICT is in accordance with the availability of applications and capability of users.

	Interaction					Distribution and search of information		Editing and presentation of information
	E-mail	Discussion board	Chat rooms	Video conferencing	NetMeeting	www-sites	CD-ROM	Digital working tools
USE								
Planning								
Marketing								
Interviewing candidates for trainee placements								
Preparation of trainees								
Follow-up								
Evaluation								
Reporting								
Dissemination of results								
Follow-up projects								
AVAILABILITY								
Own								
Beneficiaries								
partner 1								
partner 2								
partner 3								
partner 4								
etc.								
KNOW-HOW								
Own								
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